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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,022	07/29/2003	Louise E. Moser	ETE5342.05A2	9512
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JOHN P. O'BANION O'BANION & RITCHEY LLP 400 CAPITOL MALL SUITE 1550 SACRAMENTO, CA 95814			EXAMINER LOHN, JOSHUA A	
			ART UNIT 2114	PAPER NUMBER

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/631,022	Applicant(s) MOSER ET AL.	
	Examiner Joshua A Lohn	Art Unit 2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-26 is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8-14,16-18 and 27-69 is/are rejected.
- 7) ☒ Claim(s) 2,6,7,15,19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 recites the limitation "from said primary replica to said backup replicas" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim. Claims 8-13 are rejected on this basis, appropriate corrections are required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27-32 and 33-69 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 27-32 and 33-69 claim a recording medium on which a program is stored and variations thereof. These claims therefore are interpreted as recording a program per se. In order to overcome this rejection, language, specifically stating the claim, must be limited to a computer program stored on a computer readable medium executing on a computer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kampe et al., United States Patent Application Publication number 2002/0032883, filed May 2, 2001.

As per claim 1, Kampe discloses a method for replicating application program objects using semi-active or passive replication, wherein replicas of said objects are distributed across a plurality of networked computers for fault tolerance (Kampe, ¶14), including creating a primary replica of an object and one or more backup replicas of said object (Kampe, ¶14); and the step of communicating message ordering information from said primary replica to said backup replicas for achieving consistent message ordering among said primary and backup replicas (Kampe, ¶43).

As per claim 14, Kampe discloses a fault-tolerant computer system, wherein application program objects are replicated using semi-active or passive replication and distributed across a plurality of networked computers (Kampe, ¶14). Kampe discloses the system comprising: application program object replication software executable on one or more networked computers in said system and means associated with said replication software for communication of message ordering information from a primary replica to one or more backup replicas and for achieving consistent message ordering among said primary and backup replicas (Kampe, ¶10, ¶14 and ¶43).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe in view of Microsoft Computer Dictionary, Fourth Edition, published 1999.

As per claim 3, Kampe discloses processing messages that can be synchronous or asynchronous (Kampe, ¶43), however Kampe fails to disclose the set from which the messages are selected.

Microsoft Computer Dictionary discloses using TCP messages, which require verification of message delivery through the inherent use of requests and replies (Microsoft Computer Dictionary, pages 436-437). Microsoft Computer Dictionary also discloses using UDP messages, which do not require message verification and are inherently one-way messages (Microsoft Computer Dictionary, page 456). Both of these message protocols are utilized within the IP protocol system.

It would have been obvious to one skilled in the art at the time of the invention to have the network communication of Kampe use one of the transport protocols defined by Microsoft Computer Dictionary to provide the necessary details to implement a messaging system.

This would have been obvious because Kampe discloses using nodes connected by a network (Kampe, ¶132), and the Microsoft Computer Dictionary describes the TCP/IP protocol model, which includes TCP and UDP messages, as the de facto standard for data transmission

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over networks. To comply with a well known standard one of ordinary skill in the art would have been motivated to use TCP, which are bi-directional, requiring a request and reply, and allow for well accepted standard operations, and UDP messages, which are one-way and provided the benefit of improved transmission speed, to provide the synchronous and asynchronous message transmissions of Kampe.

As per claim 16, the additional limitations of claim 16 are the same as the additional limitations of claim 3. As such, the rejection of claim 16 is the same as that stated above for claim 3.

Claims 4 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe, in view of the Microsoft Computer Dictionary, in further view of Jungmaier et al., "SCTP – A Multi-link End-to-end Protocol for IP-based Networks," International Journal of Electronics and Communications, published 2001.

As per claim 4, it is shown in the previous rejection of claim 3 that a proper combination of Kampe and the Microsoft Computer Dictionary discloses the use of TCP messages and UDP messages (Microsoft Computer Dictionary, pages 436-437 and 456). The Microsoft Computer Dictionary further discloses the use TCP messages, when conformity to common standards and the benefit of minor fault tolerance is required, and the use of UDP messages, when faster transmission speeds are required. The Microsoft Computer also defines a remote procedure call as a call between remote systems that perform a task and return a result (Microsoft Computer Dictionary, page 382). This definition of remote procedure call shows that Kampe discloses the

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use of remote procedure calls in the function calls of Kampe, such as CRCS_RESYNC, which access remote software structures to return requested values, where the task is performed by the remote system (Kampe, ¶¶88-111). Kampe and Microsoft Computer Dictionary fail to disclose the use of SCTP messages.

Jungmaier discloses the use of SCTP messages to operate in a TCP/IP type network (Jungmaier, page 47).

It would have been obvious to one skilled in the art to include the SCTP messages in the types of messages available to the system of Kampe.

This would have been obvious because Kampe discloses a system in which network communication is utilized and would obviously benefit from the use of a TCP/IP protocol type system, as described in the rejection of claim 3 above. The SCTP system of Jungmaier would provide the added benefit of having a more reliable transmission system (Jungmaier, page 47), which would make the desirable TCP/IP system mentioned above even more desirable.

As per claim 17, the additional limitations of claim 17 are the same as the additional limitations of claim 4. As such, the rejection of claim 17 is the same as that stated above for claim 4.

Claims 5 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe in view of "Operating Systems 1: Process Scheduling", published 1999, in further view of Gantman et al., "Scheduling Real-Time Tasks in Distributed Systems: A Survey", published 1998.

As per claim 5, Kampe discloses that a primary server replica processes requests received from a primary client replica in an order determined by a criterion of sequence number and the

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primary server replica generates message ordering information corresponding to the order in which it processes messages (Kampe, ¶43-44, where a known sequence is initially executed and the sequence is propagated to all other replicas). Kampe fails to disclose other selection criteria for executing processes.

“Operating Systems 1” discloses the scheduling criteria of reception order (First Come-First Served, pg. 2 of slides), priority (pg. 2 of slides), fairness (Round Robin, pg. 2 of slides), and availability of resources (CPU utilization, pg. 1 of slides).

It would have been obvious to one skilled in the art at the time to include the scheduling criteria of “Operating Systems 1” in the invention of Kampe.

This would have been obvious because efficient scheduling algorithms increase the throughput and utilization while decreasing the turn-around time and waiting time of processes (“Operating Systems 1”, pg. 1 of slides). The use of additional scheduling criteria would allow for more efficient scheduling and provide the benefits mentioned above. Kampe and “Operating Systems 1” fail to disclose a deadline based scheduling algorithm.

Gantman discloses scheduling for real-time tasks that has deadline information as the most important criteria (Section 1).

It would have been obvious to one skilled in the art at the time to include the deadline criteria in the invention of Kampe and “Operating Systems 1”.

This would have been obvious because Kampe is using a checkpointing system in which checkpoints are generated in real time and need be properly archived to allow for failure recovery (Kampe, ¶12-13). Gantman discloses a system in which a deadline can be associated with a real-time task to ensure that it is processed before a certain time. This would have been

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obviously beneficial to ensure that all checkpointing messages were processed promptly to allow for complete recovery in the instance of a fault.

As per claim 18, the additional limitations of claim 18 are the same as the additional limitations of claim 5. As such, the rejection of claim 18 is the same as that stated above for claim 5.

Allowable Subject Matter

Claims 2, 6, 7, 15, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21-26 are allowable. The following is a statement of reasons for the indication of allowable subject matter: Claims 21-26 are allowable due to the inclusion of the limitation, when taken in the context of the claims as a whole, of "wherein said communication of message ordering information may be achieved without the transmission of additional messages beyond those required for operation of the application program objects without fault tolerance".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is provided on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua A Lohn whose telephone number is (703) 305-3188 until

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October 15, 2004, at which time the telephone number will change to (571) 272-3661. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoleil can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAL


SCOTT BADERMAN
PRIMARY EXAMINER